

# Feasibility Study on Land Remediation Project of Degraded Forest Land

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## Abstract

The degraded forest land project takes land development as the main content, achieves the main goal of increasing the area of effective cultivated land, improving the quality of cultivated land and land productivity, focusing on improving the basic conditions of agricultural production, making full use of the existing agricultural resources in the project area, and using scientific methods and advanced technology to carry out the project. Comprehensive land consolidation promotes the intensive use and optimal allocation of land resources, and lays the foundation for the development of diversified operations and leading projects.

## Keywords

Degraded Forest Land; Land Consolidation; Feasibility; Construction Conditions.

## 1. Introduction

Land is a non-renewable resource and asset, and it is the most basic material condition for human survival, social progress and sustainable economic development. Protecting cultivated land effectively and realizing the balance of cultivated land occupation and compensation are major issues related to the survival and development of future generations. The economic development of Shaanxi Province has entered the fast lane, the occupation of arable land for construction is inevitable, and the pressure of "double guarantee" to ensure development and protection of arable land continues to increase, and the balance of arable land occupation and compensation solves the contradiction between land supply and demand, which not only guarantees the red line of 1.8 billion mu of arable land, It ensures food security and maintains the momentum of sustainable social and economic development.

## 2. Project Area Overview

The project area is located in Jiuchenggong Town, with coordinates ranging from 107°45'00" to 107°45'34" east longitude and 34°38'19" to 34°38'41" north latitude. The maximum annual rainfall in Linyou County is 987mm, the minimum annual rainfall is 374.5mm, and the average annual rainfall is 680mm. Influenced by altitude and vegetation. The main soil erosion patterns in the project area are hydraulic erosion and soil erosion caused by human activities. After land leveling, soil improvement, and farmland shelter forest construction, the project has optimized soil physical and chemical properties, enhanced soil erosion resistance, built a water and soil loss protection system, increased the coverage of underlying surfaces, effectively curbed the occurrence and development of water and soil loss, and weakened the Even eliminate soil erosion restrictions on land use. The soil around the project area comes from loess parent material, which is formed into a certain ploughing layer after long-term tillage. The accumulation of humus and the combined amount of organic matter are not high. Planting crops in the project area can significantly improve the soil. The first is to improve the soil texture. After the plant residues remain in the soil, they are transformed into organic matter through

decomposing. For sandy soil, organic matter can increase the adhesion between sand particles and eliminate the bad properties caused by the over-sanding of the soil; secondly, it improves the pH of the soil. After the land in the project area is rehabilitated, the thickness is changed from thin to thick, the soil layer is thickened, and the single planting can be changed into a variety of plantings, so as to increase the output of agricultural crops, increase the income of farmers, and help speed up production and development; The soil structure and properties of the project area will be improved to promote a virtuous cycle of farmland ecology, which will play a good role in maintaining and improving the biodiversity in the project area and developing a variety of crops.

### 3. Project Design Goals

Through land development, unified planning, and rational layout, we hope to effectively increase the area of cultivated land and improve the quality of cultivated land, turn the existing sloping land in the project area into terraced fields, complete the construction of terraced fields in the project area, and improve the foundation of field roads and farmland protection. facilities, control soil erosion, improve agricultural production conditions and ecological environment, realize the coordinated development of cultivated land quantity, quality and ecology, and finally build the project area into a middle-class terrace suitable for cultivation. At the same time, through the development of other grasslands, the project realizes intensive agricultural production and large-scale operation and development, which can accelerate the increase of agricultural production and the income of the masses.

### 4. Analysis of Project Construction Conditions

#### 4.1. Road Transport Facilities

As of the end of 2018, the total mileage of highways in Linyou County reached 1,388.29 kilometers, an increase of 4.9%. The added value of the transportation industry, warehousing and post and telecommunications industry was 115.52 million yuan, an increase of 5.0% over the previous year. 244 National Highway Linyou Section, Zhangzhao Road to Zhulin Section Highway, Lianghua Road to Yuanzigou Highway were completed and opened to traffic. Control projects such as bridges and tunnels in the Linyou section of Xunfeng Expressway have been fully started, the Liangshe to Liangting expressway, the county town via Beimafang to Zhangzhao Road have been accelerated, and the preliminary work of Linfa Expressway and general airport has been advanced. The township and township-level roads where the project area is located are all hardened, and most of the branch roads between villages have been hardened, which is conducive to the passage of construction machinery, vehicles and personnel into the project area. With the construction of the new countryside, the remaining branch roads will also be improved, and the surrounding traffic in the project area is convenient and the roads are accessible. The field roads leading to the project area are not hardened, have no production roads, and are mostly soil pavements. The road conditions are poor, which brings inconvenience to the project construction. It is necessary to plan the field road project to build new field roads and production roads to improve the road conditions in the project area and meet the needs of agricultural production in the future.

#### 4.2. Farmland Protection and Ecological Environment Maintenance Facilities

The project area is dominated by agriculture, without industrial pollution sources, and the farmland ecological environment is good. The existing forest network is mainly arranged along both sides of the main road around the project area, and the existing road and production road forest network leading to the project area has not yet been constructed.

### 4.3. Other Facilities

The current situation of the project area is undeveloped and inferior forest land, and there is no backbone irrigation and drainage facilities. The current situation in the project area is sloping wasteland, and there are no existing field irrigation and drainage facilities. The project area is close to the residential areas of nearby villages, and the area is covered by 10kV power supply lines. Each village is equipped with transformers, and the capacity of the transformers can meet the requirements of the normal production and life of the masses and the electricity consumption of the project construction.

## 5. Improvements

In view of the above land use constraints, the following corresponding measures will be taken to improve the current land use status of the project area, increase land productivity, and improve the living standards of local residents.

- (1) Through land leveling, rationally planning and arranging fields, building ridges and ridges, and developing the original defective forest land in the project area into horizontal terraces to improve the efficiency of land use.
- (2) Fully understand the current status of roads in and around the project area, rationally plan and layout field roads, improve agricultural convenience, and promote the rapid development of agricultural production in the project area.
- (3) Implement the soil fertility conservation project of the ploughing layer, and improve the land nutrients in the project area through measures such as topsoil stripping, topsoil backfilling, ploughing, and application of compound fertilizers, so that the physical and chemical properties of the soil meet the requirements of agricultural production.

## 6. General Layout of the Project

According to the characteristics of the project itself, in accordance with the general idea of soil saving and terracing, combined with the overall planning of land use at the city and county levels, land consolidation planning, etc., unified consideration and comprehensive arrangement constitute the overall layout of sustainable development. It is determined that agriculture will be the main focus in the later stage of the project area, and the land use layout of the project area is determined as follows: the development of remnant forest land as terraced fields, supporting field roads and farmland protection forests, and the construction of terraced fields with drought and flood protection. The planning content includes land leveling project, field road project, farmland protection and ecological environment preservation project. In order to reflect the tenet of "development in protection, protection in development", in the planning, according to the principle of "comprehensive arrangement of terraced fields and comprehensive matching of fields, roads and forests", reasonable arrangements are made to form terraced fields with regular layout, supporting irrigation facilities, A rural ecological landscape with a criss-crossing traffic system and forests surrounding the village.

The overall project layout is mainly based on land leveling. The original slope of the project area is relatively large. In order to meet the needs of agricultural production, it is determined to level the original slope into horizontal terraces. According to the natural topography of the project area, the interior of the project area is divided into unequal areas. For terraced fields, the interior of the field requires levelling. The length and width of the field vary according to the terrain. The shape of the field is roughly in the shape of a strip or belt. The ridge is built on the edge of the field, and the ridges are arranged along the contour line.

Field road engineering is an important part of farmland infrastructure construction. The overall layout of the project area requires smooth roads, which are convenient for agricultural

mechanization operations and conducive to the development of agricultural modernization. Combined with the actual situation of local agricultural production, the existing roads can meet the requirements of field roads. This time, production roads are planned between fields to facilitate agricultural production.

The farmland protection and ecological environment maintenance project is to maintain and improve the ecological conditions of the project area. In this plan, one row of red-leaf plums is planted along both sides of the existing road entering the project area, with a plant spacing of 3m. In order to effectively prevent soil erosion, facilitate soil and water conservation, and increase vegetation coverage, grass seeds were artificially sown on the slopes of fields.

After the project is completed, the fields will be flat, the fields will be tidy, and the field roads will be matched.

## 7. Concluding Remarks

Human beings purposefully cultivate and transform the soil, which will continuously improve the soil fertility. After the project area is transformed into cultivated land, the soil changes from an oxidation-based process to an oxidation-reduction alternate process, which is conducive to the formation and accumulation of soil organic matter and promotes the improvement of land productivity.

To implement the basic national policy of protecting land resources, it is necessary to rationally develop and utilize resources, adhere to both development and conservation, put conservation in the first place, develop during protection, protect during development, and develop and protect at the same time.

## References

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